ABSTRACT:

The present invention discloses inhibitors of the primary sigma factor in $Staphylococcus\ aureus\ (\sigma^{SA})$, an essential protein implicated in RNA synthesis. The invention also discloses methods for inhibiting bacterial growth by contacting a bacterium with an antibacterial compound that specifically binds to a bacteriophage polypeptide binding domain of the $Staphylococcus\ aureus$ primary sigma factor. Examples of inhibitors include bacteriophage polypeptides inhibiting growth of S. aureus and bacteriophage polypeptides binding specifically to S. aureus primary sigma factor. In addition, the invention discloses screening methods for identifying compounds which inhibit biochemical and/or cellular activity of S. aureus primary sigma factor.

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